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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/885,632	06/19/2001	Christopher H. Elving	15437-0536	4525

29989 7590 07/26/2005

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EXAMINER

ZHEN, LI B

ART UNIT PAPER NUMBER

2194

DATE MAILED: 07/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/885,632

Applicant(s)

ELVING, CHRISTOPHER H.

Examiner

Li B. Zhen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 April 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4, 7, 10-13 and 36-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7, 10-13 and 36-45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2/4/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. 1-4, 7, 10-13 and 36-45 are pending in the current application.

#### ***Continued Examination Under 37 CFR 1.114***

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 9, 2005 has been entered.

#### ***Response to Arguments***

3. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

#### ***Claim Rejections - 35 USC § 101***

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 36 - 44 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 36 - 44 are not limited to tangible embodiments. In view of Applicant's disclosure, specification page 27, lines 17 - 24 and page 28, lines 2 - 7, the medium is not limited to tangible embodiments, instead being defined as including both tangible

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embodiments (e.g., optical or magnetic disks, such as storage device, Volatile media includes dynamic memory, such as main memory) and intangible embodiments (e.g., acoustic or light waves, such as those generated during radio wave and infrared data communications). As such, the claim is not limited to statutory subject matter and is therefore non-statutory. To overcome this type of 101 rejection the claims need to be amended to include only the physical computer media and not a transmission media or other intangible or non-functional media.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. **Claims 1, 2, 36, 37 and 45 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,862,635 to Alverson et al. [hereinafter referred to as Alverson].**

8. As to claim 1, Alverson teaches a computer-implemented method for buffering data [col. 7, lines 3 – 17] in a multithreaded environment [col. 6, lines 10 – 25], comprising:

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reading a buffer index value that identifies a data buffer that was last used for buffering data [write counter 1202; col. 13, lines 15 – 67];

incrementing the buffer index value [To add an item to the parallel list, a thread fetches and adds a 1 to the write counter; col. 13, lines 15 – 67], locating a buffer array entry that is associated with the buffer index value [routine sets the bucket array index (i) to the fetched write counter modulo the size of the bucket array (N). In step 1403, the routine retrieves the pointer stored in the indexed bucket; col. 14, lines 12 – 33];

determining whether the buffer array entry indicates a particular value [routine returns a pointer to an item removed from the parallel list or returns a NULL value if the lower bound is less than 1; col. 14, lines 33 – 67];

if the buffer array entry does not indicate the particular value [if the full/empty bit of the bucket is set to empty, then the read will block until it is set to full; col. 15, lines 1 – 13] then attempting to obtain a lock on a particular data buffer that is associated with the buffer array entry [Steps 1507 and 1508 effect locking and unlocking of the bucket; col. 15, lines 1 – 14]; and

if the buffer array entry indicates the particular value then incrementing the buffer index value [In step 1404, the routine sets the next pointer in the passed item to the retrieved pointer. In step 1405, the routine sets the indexed bucket to point to the passed item, which sets the full/empty bit to full; col. 14, lines 19 – 33].

9. As to claim 2, Alverson teaches if the attempt to obtain the lock on the particular data buffer succeeds then updating the buffer array entry to indicate the particular value

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[writes a value to the word, the full/empty bit of the word is set to full; col. 17, lines 32 – 55].

10. As to claims 36 and 37, these are product claims that correspond to method claims 1 and 2. These claims are similar in scope to claims 1 and 2; therefore, they are rejected for the same reasons as claims 1 and 2 above.

11. As to claim 45, this is a system claim that corresponds to method claim 1. This claim is similar in scope to claim 1; there, this is rejected for the same reason as claim 1 above.

***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. **Claims 3, 4, 7, 10 – 13 and 38 – 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alverson in view of U.S. Patent No. 6,182,086 to Lomet et al. [hereinafter referred to as Lomet, cited in the previous office action].**

14. As to claim 3, Alverson teaches selecting a particular buffer management structure from a plurality of buffer management structures [selects next bucket in the array; col. 13, lines 15 - 67], wherein said plurality of buffer management structures are each associated with a set of data buffers that are used for buffering data to a physical

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memory unit [Each bucket in the bucket array contains a pointer to a linked list of item; col. 13, lines 15 – 67];

wherein the buffer index value is associated with the particular buffer management structure [col. 14, lines 10 – 33].

15. Alverson does not teach receiving a connection request from a client and assigning a thread of execution to process said connection request.

16. However, Lomet teaches assigning a thread of execution [in a separate process or thread; col. 17, lines 20 – 36] to process said connection request [At step 60, the client sends a request to the server; col. 7, lines 28 – 39].

17. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the teaching of receiving a connection request from a client and assigning a thread of execution to process said connection request as taught by Lomet to the invention of Alverson because allows server recovery independent of client recovery, while client recovery is dependent on the server [col. 6, lines 50 – 54 of Lomet].

18. As to claim 4, Alverson as modified teaches generating log data in response to a request for accessing a resource [server force logs replies sent back to clients in response to client requests as a means for providing a persistent log against which an application state of a client application can be replayed to enable recovery; col. 6, lines 40 – 55 of Lomet], wherein said resource represents one or more sets of content that are associated with a network server [a resource manager 82 that maintains temporary

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copies of data pages and application states; col. 8, line 60 – col. 9, line 10 of Lomet];  
and

selecting a buffer management structure based on one or more addresses in which said one or more sets of content are stored on said network server [stable database 94 maintains stable versions of the application states (including address spaces) and data objects, and the stable log 96 maintains a sequence of logged operations; col. 9, lines 15 – 23 of Lomet].

19. As to claim 7, Alverson as modified teaches writing log data into said particular data buffer [writes a value to the word, the full/empty bit of the word is set to full; col. 17, lines 32 – 55 of Alverson].

20. As to claim 10, Alverson as modified teaches maintaining a plurality of data buffers as an array of available buffers [initialize parallel list routine initializes the parallel list to be empty; col. 14, lines 1 – 10 of Alverson]; and in response to detecting that the particular data buffer contains a particular limited amount of free data space, removing said particular data buffer from said array of available buffers [col. 17, lines 32 – 55 of Alverson].

21. As to claim 11 Alverson as modified teaches removing said particular data buffer from said array of available buffers further comprises linking said particular data buffer into a list of ready-to-write data buffers [Each bucket in the bucket array contains a pointer to a linked list of items. Items are added to the linked lists of the bucket array in a circular manner; col. 13, lines 15 – 67 of Alverson].



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22. As to claim 12, Alverson as modified teaches removing said particular data buffer from said array of available buffers [Whenever the observed thread writes a value to the word, the full/empty bit of the word is set to full; col. 17, lines 32 – 55 of Alverson]; and storing on a non-volatile storage unit information contained in said particular data buffer [non-volatile memory 78 includes a stable database 94 and a stable log 96....the stable log 96 maintains a sequence of logged operations; col. 9, lines 15 – 25 of Lomet].

23. As to claim 13, Alverson as modified teaches maintaining a plurality of data buffers as an array of available buffers [initialize parallel list routine initializes the parallel list to be empty; col. 14, lines 1 – 10 of Alverson]; and in response to determining that no data buffer is available in said array of available buffers for storing said log data, requesting a free data buffer from a global list of free data buffers [Whenever the observed thread writes a value to the word, the full/empty bit of the word is set to full; col. 17, lines 32 – 55 of Alverson].

24. As to claims 38 – 44, these are product claims that correspond to method claims 3, 4, 7 and 10 – 13. These claims are similar in scope to claims 3, 4, 7 and 10 – 13; therefore, they are rejected for the same reasons as claims 3, 4, 7 and 10 – 13 above.

### ***Conclusion***

25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Li B. Zhen whose telephone number is (571) 272-3768. The examiner can normally be reached on Mon - Fri, 8:30am - 5pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Li B. Zhen  
Examiner  
Art Unit 2194

lbz



**SUE LAO**  
**PRIMARY EXAMINER**